PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

ROBINSON et al.   CASE NO: AM100401

SERIAL NO: 10/705,716   GROUP ART UNIT: 1653

FILED: NOVEMBER 10, 2003   EXAMINER: A. DESAI

FOR: A NOVEL PTH RESPONSIVE GENE

DECLARATION UNDER 37 C.F.R. § 1.131

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In the Non-Final Office Action mailed on June 15, 2006, the Examiner rejected claims 8-12 and 38-42 under 35 U.S.C. § 102(a) as being anticipated by Tanner SM *et al.* (Proc. Natl. Acad. Sci. USA 98:13901-06 (2001)). Specifically, the Examiner asserted that SEQ ID NO:2 and SEQ ID NO:10 of the above-identified application were anticipated by Tanner SM *et al.*'s deposit of polynucleotide sequences that encode the polypeptides of SEQ ID NO:2 and SEQ ID NO:10. Reference to SEQ ID NO:10 has been deleted from the present application.

I, John Robinson, declare that the amino acid sequence at issue, SEQ ID NO:2, was reduced to practice in the United States prior to the online publication date of Tanner SM *et al.* I note that my declaration is to be construed as swearing behind the online publication date of the Tanner SM *et al.* reference, which the website for PNAS states is November 13, 2001 (*see* http://www.pnas.org/content/vol98/issue24/). Further to this declaration, I attach signed notebook pages (Exhibit 1), with dates redacted, that exemplify the reduced to practice sequence (see highlighted text).

As a person signing below:

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true. I

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Docket No. AM100401

also declare that all statements were made with knowledge that willful false statements, and the like, are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and any such willful false statements may jeopardize the validity of either the patent application or any patent issuing thereon.

Respectfully Submitted,

_____ 12/6/06

John A. Robinson   Date

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Exhibit 1

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BOOK   PAGE

TITLE

PROJECT NO.

Work continued from Page

REDACTED

r3f22 g+i 8-16-00.mpd (1 > 2176) Site and Sequence

i(G)

REDACTED

r3f22 g+i 8-16-00.mpd (1 > 2176) Site and Sequence
Enzymes : 126 of 478 enzymes (Filtered)
Settings :   Circular, Certain Sites Only, Standard Genetic Code

```
                                                                      Eco52 I     Asc I
                                                                      Xma III     BssH II
        BspDI           EcoR V
        Cla I              EcoR I      BssS I

CGGTATCGATACGCTTGATATCGAATTCGGCACGAGCCGGGCTGAGCCGCAGCCGCAGCCGCAAGCCGAACGGCCGCTGGGCGCGCCCGC
                                                                                          + 90
GCCATAGCTATGCGAACTATAGCTTAAGCCGTGCTCGGCCCGACTCGGCGTCGGCGTCGGCGTTCGGCTTGCCGGCGACCCGCGCGGGCG

   R Y R Y A . Y R I R H E P G . A A A A A A A S R T A A G R A R
    G I D T L D I E F G T S R A E P O P O P O P Q A E R P L G A P A
   T V S I R L I S N S A R A G L S R S R S R K P N G R W A R P
```

```
                                                               Bsa I
                                                               Eco31I
                                                               Cfr9I
                                                               PspAI
                                                               Xma I
                                                                  Sma I      Tth111 I

AACAGGGGAGGATGGGCTGCGGCGGGAGCCGAGCCGATGCCATCGAGCCCCGCTACTATGAGAGCTGGACCCGGGAGACCGAGTCCACCT
                                                                                        + 180
TTGTCCCCTCCTACCCGACGCCGCCCTCGGCTCGGCTACGGTAGCTCGGGGCGATGATACTCTCGACCTGGGCCCTCTGGCTCAGGTGGA

   N R G G W A A A A G A E P (M) P S S P A T M R A G P G R P S P P
    T G E D G L R R E P S R C H R A P L L E L D P G D R V H L
   O O G R (M) G C G G S R A D A I E P R Y Y E S W T R E T E S T
```

reading frame starts

```
                                                 Bsg I

GGCTCACCTACACCGACTCGGACGCGCTGCCCAGCGCCGCAGCCACGGACAGCGGCCCCGAGGCGGGCGGCCTGCACGCGGGTGTGCTGG
                                                                                        + 270
CCGAGTGGATGTGGCTGAGCCTGCGCGACGGGTCGCGGCGTCGGTGCCTGTCGCCGGGGCTCCGCCCGCCGGACGTGCGCCCACACGACG

   G S P T P T R T R C P A P O P R T A A P R R A A C T R V C W
    A H L H R L G R A A O R R S H G O R P R G G G R P A R G C A G
   W L T Y T D S D A L P S A A A T D S G P E A G G L H A G V L
```

```
        Bbs I                         Pst I                     SanD I  EclHK I
        | EclHK I                     | BspM I

AAGACGGGCCGTCCTCTAACGGTGTGCTCCGACCTGCAGCCCCAGGTGGAATAGCCAACCCAGAGAAGAAGATGAACTGTGGGACCCAAT
                                                                                        + 360
TTCTGCCCGGCAGGAGATTGCCACACCAGGCTGGACGTCGGGGTCCACCTTATCGGTTGGGTCTCTTCTTCTACTTGACACCCTGGGTTA

   K T G R P L T V C S D L O P O V E . P T O R R . T V G P N
    R R A V L . R C A P T C S P R W N S O P R E E D E L W D P M
   E D G P S S N G V L R P A A P G G I A N P E K K M N C G T O
```

DATE

REDACTE

SIGNATURE   V. S. Desulc

DISCLOSED TO AND UNDERSTOOD BY   DATE

Exhibit 1 (continued)

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BOOK   PAGE

TITLE

PROJECT NO.

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Page 3

r3f22 g+i 8-16-00.mpd (1 > 2176)   Site and Sequence

Page 2

f22 g+i 8-16-00.mpd (1 > 2176)   Site and Sequence

```
              Bpu10 I
              Bpu10 I                    Xcm I
GTCCCAACTCACAGAGCCTCAGCTCAGGCCCTCTGACCCAGAAGCAGAATGGCCTTTGGACCACAGAGGCTAAAAGGGATGCCAAGCGAA + 450
CAGGGTTGAGTGTCTCGGAGTCGAGTCCGGGAGACTGGGTCTTCGTCTTACCGGAAACCTGGTGTCTCCGATTTTCCCTACGGGTTCGCTT

 V P T H R A S A Q Q A L   P R S R M A F G P Q R L K G M P S E
  S Q L T E P Q L R P S D P E A E W P L D H R G   K G C Q A N
 C P N S Q S L S S G P L T Q K Q N G L W T T E A K R D A K R

TGTCTGCAAGAGAAGTCGCTATCAGCGTCACAGAGAATATCCGGCAGATGGACAGAAGTAAAAGGGTCACAAAGAACTGCATCAATTAGC + 540
ACAGACGTTCTCTTCAGCGATAGTCGCAGTGTCTCTTATAGGCCGTCTACCTGTCTTCATTTTCCCAGTGTTTCTTGACGTAGTTAATCG

 C L Q E K S L S A S Q R I S G R W T E V K G S Q R T A S I S
  V C K R S R Y Q R H R E Y P A D G Q K   K G H K E L H Q L A
 M S A R E V A I S V T E N I R Q M D R S K R V T K N C I N

 AlwN I                                    Ssp I
AGTGTCTGGGTGTGGAAGCACATGAACTTCTTTGTGGCGTCCAGTCAAAGAATATTGAAGAAGTGGGTGTCACTCACTGAACGTGGATGC + 630
TCACAGACCCACACCTTCGTGTACTTGAAGAAACACCGCAGGTCAGTTTCTTATAACTTCTTCACCCACAGTGAGTGACTTGCACCTACG

 S V W W V W K H M N F F V A S S Q R I L K K W V S L T E R G C
  V S G C G S T   T S L W R P V K E Y   R S G C H S L N V D A
 Q C L G V E A H E L L C G V Q S K N I E E V G V T H   T W M

              Dra III
CTCTGAGCGACGCACGGCCACCCACGCGGTGACGACCATCCCGGTTTCCTGTTTATCACATACAGAAAATACATCGAAAAGTCCTGGAAT + 720
GAGACTCGCTGCGTGCCGGTGGGTGCGCCACTGCTGGTAGGGCCAAAGGACAAATAGTGTATGTCTTTTATGTAGCTTTTCAGGACCTTA

 L   A T H G H P R G D D H P G F L F I T Y R K Y I E K S W N
  S E R R T A T H A V T T I P V S C L S H T E N T S K S P G I
 P L S D A R P P T R   R P S R F P V Y Y H I Q K I H R K V L E

                                        AlwN I      Bsp19I
                                        BstAPI      Nco I
 Xmn I         Van91 I           Pst I
ATGTTCACAGATTGCCAAACTATGGTTTGTTTTTTCCTCTCTGCAGCTTCCGTAGCAGGGTCTGCTGTAACCATGGTGAAGCCCGTGGGCC + 810
TACAAGTGTCTAACGGTTTGATACCAAACAAAAAGGAGAGACGTCGAAGGCATCGTCCCAGACGACATTGGTACCACTTCGGGCACCCGG

 M F T D C Q T M V C F S S L Q L P   Q G L L   P W   S P W A
  C S Q I A K L W Y F V F P L C S F R S R V C C N H G E A R G P
 Y V H R L P N Y G L F F F L S A A A S V A G S A V T M V K P V G
```

Work continued to Page

DATE

GNATURE   V. S. Saerulic

Exhibit 1 (continued)

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BOOK PAGE

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ITLE

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Page 3

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r3f22 g+i B-16-00.mpd (1 > 2176) Site and Sequence

```
                      Cfr9I
                      PspAI              EcoICR I
                      Xma I              Sac I
            Ssp I       Sma I            SstI  Nhe I
                                                                              900
TGTGAATGAATATTGGAATCCCCGGGGCAAGGAGCTCACGCTAGCGTAGAAATTTCACAGTGCGTGGTTTCGGACAAGCTCCCTTTTCCT
ACACTTACTTATAACCTTAGGGGCCCCGTTCCTCGAGTGCGATCGCATCTTTAAAGTGTCACGCACCAAAGCCTGTTCGAGGGAAAAGGA

  C   E    I  L  E  S  P  G  Q  G  A  H  A  S  V  E  I  S  Q  C  V  V  S  D  K  L  P  F  P
   V  N  E  Y  W  N   P  R  G  K  E  L  T  L  A   K  F  H  S  A  W  F  R  T  S  S  L  F  L
  L   M  N  I  G  I   P  G  A  R  S  S  R  .   R  R  N  F  T  V  R  G  F  G  Q  A  P  F  S
```

```
       Dra I                  Bst98 I
                                                                              990
CCTTTCTTTTTAAATACGGCCATTGTTTTTCACTTAAGAGCTGGCTCTCACCAACTCTAAACTCAAAAATACAAGAATCAGAGAAACAGAG
GGAAAGAAAAATTTATGCCGGTAACAAAAGTGAATTCTCGACCGAGAGTGGTTGAGATTTGAGTTTTTATGTTCTTAGTCTCTTTGTCTC

   P  F  F  L  N  T  A  I  V  F  T   E  L  A  L  T  N  S  K  L  K  N  T  R  I  R  E  T  E
    L  S  F  L  I  R  P  L  F  S  L  K  S  W  L  S  P  T  L  N  S  K  I  Q  E  S  E  K  Q  R
  S  F  L  F  K  Y  G  H  C  F  H  L  R  A  G  S  H  Q  L  .  T  Q  K  Y  K  N  Q  R  N  R
```

```
                 Eco72 I                              EcoN I
                                                                             1080
AGACTCAGAATGAGATTCATCAGTCCTAGCTTCACGTGCTGACTCCCCGGTGCCTATGCGGTGCCTTTAGGAGGTGTCTATGACACACAC
TCTGAGTCTTACTCTAAGTAGTCAGGATCGAAGTGCACGACTGAGGGGCCACGGATACGCCACGGAAATCCTCCACAGATACTGTGTGTG

  R  L  R  M  R  F  I  S  P  S  F  T  C   L  P  G  A  Y  A  V  P  L  G  G  V  Y  D  T  H
   D  S  E   D  S  S  V  L  A  S  R  A  D  S  P  V  P  M  R  C  L   E  V  S  M  T  H  T
  E   T  Q  N  E  I  H  Q  S   L   H  V  L  T  P  R  C  L  G  A  F  R  R  C  L  .  H  T
```

```
                              BseR I                   Bsa I
                                                       Eco31I
                                                                             1170
ACACACACACACACACACACACACACACACACACACACACACCTGTTCCTCCTCTACCTGGAAAGGTCTCCCCAGGCTGGCATCAGGCATT
TGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGGACAAGGAGGAGATGGACCTTTCCAGAGGGTCCGACCGTAGTCCGTAA

   T  H  T  H  T  H  T  H  T  H  T  H  T  H  L  F  L  L  Y  L  E  R  S  P  R  L  A  S  G  I
    H  T  H  T  H  T  H  T  H  T  H  T  H  T  C  S  S  S  T  W  K  G  L  P  G  W  H  Q  A  L
  H   T  H  T  H  T  H  T  H  T  H  T  P  V  P  P  L  P  G  K  V  S  Q  A  G  I  R  H
```

Work continued to Page

DATE

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GNATURE V.S.Sesilin

Exhibit 1 (continued)

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REDACTED

3f22 g+i 8-16-00.mpd (1 > 2176)   Site and Sequence

```
                                    Bsp120 I
                                    Bsg I                    BspM I
                        BspLU11 I   Apa I
                                                                                                    + 126C
GGCTTCCGAATCACAATGTCACATGTTTGGGGCCCTTGCACCCAACCTGCACCCGCTTTGGGACCTAGCTCCATGTGGCTTTTCCCATAG
CCGAAGGCTTAGTGTTACAGTGTACAAACCCCGGGAACGTGGGTTGGACGTGGGCGAAACCCTGGATCGAGGTACACCGAAAAGGGTATC
```

```
                                                                                    Cfr9I
                                                                                    PspAI
                                                                                    Xma I
                                                                                    Sma I
                                        Pvu II
                                                                                                    + 135C
            Bpm I
CTTTCTAGTTCCCTGTTCTTCTCATGGACTTTGTACTCCAGTCAGGTCATTTGCAGCTGTAATCAAAGACTGGACACCACTCCCGGGGGA
GAAAGATCAAGGGACAAGAAGAGTACCTGAAACATGAGGTCAGTCCAGTAAACGTCGACATTAGTTTCTGACCTGTGGTGAGGGCCCCCT
```

```
                                                        Bgl I        BsrG I
                                                                                                    + 144C
  BstE II Avr II              Dra III
AGGTGACCTAGGAACACATGGTGACACACGATGCCCCCTTGGCCTTTCTGTACACAGCCCCAAGGACCGTGTTATTTTGGTATCTGCA
TCCACTGGATCCTTGTGTACCACTGTGTGTGCTACGGGGGAACCGGAAAGACATGTGTCGGGGTTCCTGGCACAATAAAACCATAGACGT
```

```
                AlwN I
                Van91 I
                                                                                                    + 153C
AAGCAATTAGTTTGGAAAGCCAGAGCCTGGTTGATGTATATTCCTGCTGACATCAGACCAAGAAGGCACTGTATTGGAAAGCAGGCAGCC
TTCGTTAATCAAACCTTTCGGTCTCGGACCAACTACATATAAGGACGACTGTAGTCTGGTTCTTCCGTGACATAACCTTTCGTCCGTCGG
```

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DATE   REDACTED

SIGNATURE   V. S. Saesulic

Exhibit 1 (continued)

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Page 6

Page 5

Work continued from Page

3f22 g+i 8-16-00.mpd (1 > 2176) Site and Sequence

A stops here as likewi

```
                                                                      1620
AACACAGCCAAGCCATGCTCTGATATGGACCCTTTCCCCACATTCCTAAACACATCCTCCTGCAAAGTATGGCACAGCCTGAGTTTGAAA
TTGTGTCGGTTCGGTACGAGACTATACCTGGGAAAGGGGTGTAAGGATTTGTGTAGGAGGACGTTTCATACCGTGTCGGACTCAAACTTT
```

N T A K P C S D M D P F P T F L N T S S C K V W H S L S L K
 T Q H S Q A L I W T L S P H S   T H P P A K Y G T A   V   K
Q   H S Q A M L   Y G P F P H I P K H I L L Q S M A Q P E F E

```
                                                                      1710
GGACCGTTCACTTGCTTGGGCTTATTAAAGGTATAGTCCAAGTTGTGTCAAACTGTATCAACAGACTCCACATCTAGCAGCAAGAGCAGT
CCTGGCAAGTGAACGAACCCGAATAATTTCCATATCAGGTTCAACACAGTTTGACATAGTTGTCTGAGGTGTAGATCGTCGTTCTCGTCA
```

 G P F T C L G L L K V   R Y S   S K L C Q T V S T D S T S S S K S S
 D R S L A W A Y   R Y S P S C V K L Y Q Q T P H L A A R A V
R T V H L L G L I K G I V Q V V S N C I N R L H I   Q Q E Q

```
BspLU11 I        Tth111 I              Bpu10 I
                                                                      1800
CTGGTGACATGTTTATACGACACAGTCCAAGAGAAGTAACCTAAGCGGGCTAAAATGCAGATGCTCACGCCTGTCTCTGAAGTGATTTCT
GACCACTGTACAAATATGCTGTGTCAGGTTCTCTTCATTGGATTCGCCCGATTTTACGTCTACGAGTGCGGACAGAGACTTCACTAAAGA
```

 L V T C L Y D T V Q E K   P K R A K M Q M L T P V S E V I S
 S W   H V Y T T Q S K R S N L S G L K C R C S R L S L K   F L
 S G D M F I R H S P R E V T   A G L   N A D A H A C L   S D F

```
Eco57 I
                                                                      1890
CCAACACAGACAGAACTGTAAACTGTGCGTTTATTCGTATTAAAAATTCACTGCCAATCTTGTGCCAGCTACAGTAACAGACACAGAGGGG
GGTTGTGTCTGTCTTGACATTTGACACGCAAATAAGCATAATTTTAAGTGACGGTTAGAACACGGTCGATGTCATTGTCTGTGTCTCCCC
```

 P T Q T E L   T V R L F V L K F T A N L V P A T V T D T E G
 Q   H R Q N C K L C V Y S Y   N S L P I L C Q L Q   Q T Q R G
 S N T D R T V N C   A F I R I K I H C Q S C A S Y S N R H R G

```
                                                                      1980
GTTGGAGTCTGGCAGTCACGACCGTACATCTGACTCTATGGGGAGGCTTGAGACTCAGGAGAATGACCTGAACCCTGCGGCACAGGACCA
CAACCTCAGACCGTCAGTGCTGGCATGTAGACTGAGATACCCCTCCGAACTCTGAGTCCTCTTACTGGACTTGGGACGCCGTGTCCTGGT
```

 V G V W Q S R P Y I   L Y G E A   D S G E   P E P C G T G P
 L E S G S H D R T S D S M G R L E T Q E N D L N P A A Q D Q
 G W S L A V T T T V H L T L W G G L R L R R R M T   T L R H R T

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NATURE V. S. Sesulic

Exhibit 1 (continued)

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TITLE

PROJECT NO.

Work continued from Page

REDACTED
r3f22 g+i 8-16-00.mpd (1 > 2176)   Site and Sequence

BsrD I   BstX I   Bbs I
                                                                     BseR I

```
                                                                                              207C
ACCATTGCAGTGGAATCTCACTTCTAGGTTAAAGGTAGCTTTCTATCCATCGCAAATGTATGTCTTCTCCTCTGCCRTGTAGACTACAGT
TGGTAACGTCACCTTAGAGTGAAGATCCAATTTCCATCGAAAGATAGGTAGCGTTTACATACAGAAGAGGAGACGGYACATCTGATGTCA
```

```
  T  I  A  V  E  S  H  F  .  V  K  G  S  F  L  S  I  A  N  V  C  L  L  L  C  ?  V  D  Y  S
P  L  Q  W  N  L  T  .  S  R  L  K  V  A  F  Y  P  S  O  M  Y  V  F  S  S  A  ?  .  T  T  V
N  H  C  S  G  I  S  L  L  G  .  R  .  L  S  I  H  R  K  C  M  S  S  P  L  P  C  R  L  Q
```

EclHK I

```
                                                                                              216C
TTTCCCCAACCTCTCTCACCTTGACTCCTTGTCAAAGGGCTTTTAGGGAACTTCATGTTCTGACAATTTAACTAATAAAACAAAAGCAAG
AAAGGGGTTGGAGAGAGTGGAACTGAGGAACAGTTTCCCGAAAATCCCTTGAAGTACAAGACTGTTAAATTGATTATTTTGTTTTCGTTC
```

```
                                                         Q  F  N  .        N  K  S  K
  F  P  Q  P  L  S  P  .  L  L  V  K  G  L  L  G  N  F  M  F  .      T  N  K  T  K  A  S
F  P  N  L  S  .  S  H  L  D  S  L  S  K  G  F  .  G  T  S  C  S  D  N  L  .  I  K  O  K  O
F  S  P  T  S  L  .  T  L  T  P  C  Q  R  A  F  R  E  L  H  V  L  T  I  .  L  I  K  O  K  Q
```

```
CCCCGTGAAAAAAAAA        2176
GGGGCACTTTTTTTTT
```

```
    P  R  E  K  K
    A  P  V  K  K  K
  A  P  .  P  .  K  K  N
```

Work continued to Page

DATE

REDACTED

GNATURE   V. S. Sesuli,

Exhibit 1 (continued)

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TITLE

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R3F22 G+I 8-16-00.seq

```
                    10        20        30        40
          ┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊
          CGGTATCGATACGCTTGATATCGAATTCGGCACGAGCCGG   40
          GCTGAGCCGCAGCCGCAGCCGCAAGCCGAACGGCCGCTGG   80
          GCGCGCCCGCAACAGGGGAGGATGGGCTGCGGCGGGAGCC  120
          GAGCCGATGCCATCGAGCCCCGCTACTATGAGAGCTGGAC  160
          CCGGGAGACCGAGTCCACCTGGCTCACCTACACCGACTCG  200

                    210       220       230       240
          ┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊
          GACGCGCTGCCCAGCGCCGCAGCCACGGACAGCGGCCCCG  240
          AGGCGGGCGGCCTGCACGCGGGTGTGCTGGAAGACGGGCC  280
          GTCCTCTAACGGTGTGCTCCGACCTGCAGCCCCAGGTGGA  320
          ATAGCCAACCCAGAGAAGAAGATGAACTGTGGGACCCAAT  360
          GTCCCAACTCACAGAGAGCCTCAGCTCAGGCCCTCTGACCCA  400
                                          430  ≡In RatF4Gres.

          ┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊
          GAAGCAGAATGGCCTTTGGACCACAGAGGCTAAAAGGGAT  440
          GCCAAGCGAATGTCTGCAAGAGAAGTCGCTATCAGCGTCA  480
          CAGAGAATATCCGGCAGATGGACAGAAGTAAAAGGGTCAC  520
          AAAGAACTGCATCAATTAGCAGTGTCTGGGTGTGGAAGCA  560
          CATGAACTTCTTTGTGGCGTCCAGTCAAAGAATATTGAAG  600
                    610  stop >  620       630       640
          ┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊
          AAGTGGGTGTCACTCACTGAACGTGGATGCCTCTGAGCGA  640
          CGCACGGCCACCCACGCGGtgacgaccatcccggttTCCT  680
          GTTTATCACATACAGAAAATACATCGAAAAGTCCTGGAAT  720
          ATGTTCACAGATTGCCAAACTATGGTTTGTTTTTCCTCTC  760
          TGCAGCTTCCGTAGCAGGGTCTGCTGTAACCATGGTGAAG  800

                    810       820       830       840
          ┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊
          CCCGTGGGCCTGTGAATGAATATTGGAATCCCCGGGGGCAA  840
          GGAGCTCACGCTAGCGTAGAAATTTCACAGTGCGTGGTTT  880
          CGGACAAGCTCCCTTTTCCTCCTTTCTTTTTAAATACGGC  920
          CATTGTTTTCACTTAAGAGCTGGCTCTCACCCAACTCTAAA  960
          CTCAAAAATACAAGAATCAGAGAAACAGAGAGACTCAGAA 1000

                    1010      1020      1030      1040
          ┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊
          TGAGATTCATCAGTCCTAGCTTCACGTGCTGACTCCCCGG 1040
          TGCCTATGCGGTGCCTTTAGGAGGTGTCTATGACACACAC 1080
          ACACACACACACACACACACACACACACACACACACACAC 1120
          ACCTGTTCCTCCTCTACCTGGAAAGGTCTCCCAGGCTGGC 1160
          ATCAGGCATTGGCTTCCGAATCACAATGTCACATGTTTGG 1200
```

R3F22 G+I 8-16-00.seq

```
                    1210      1220      1230      1240
          ┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊
          GGCCCTTGCACCCAACCTGCACCCGCTTTGGGACCTAGCT 1240
          CCATGTGGCTTTTCCCATAGCTTTCTAGTTCCCTGTTCTT 1280
          CTCATGGACTTTGTACTCCAGTCAGGTCATTGGCAGCTGT 1320
          AATCAAAGACTGGACACCACTCCCGGGGGAAGGTGACCTA 1360
          GGAACACATGGTGACACACGATGCCCCCTTGGCCTTTC 1400

                    1410      1420      1430      1440
          ┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊
          TGTACACAGCCCCAAGGACCGTGTTATTTTGGTATCTGCA 1440
          AAGCAATTAGTTTGGAAAGCCAGAGCCTGGTTGATGTATA 1480
          TTCCTGCTGACATCAGACCAAGAAGGCACTGTATTGGAAA 1520
          GCAGGCAGCCAACACAGCCAAGCCATGCTCTGATATGGAC 1560
          CCTTTCCCCACATTCCTAAACACATCCTCCTGCAAAGTAT 1600

                    1610      1620      1630      1640
          ┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊
          GGCACAGCCTGAGTTTGAAAGGACCGTTCACTTGCTTGGG 1640
          CTTATTAAAGGTATAGTCCAAGTTGTGTCAAACTGTATCA 1680
          ACAGACTCCACATCTAGCAGCAAGAGCAGTCTGGTGACAT 1720
          GTTTATACGACACAGTCCAAGAGAAGTAACCTAAGCGGGC 1760
          TAAAATGCAGATGCTCACGCCTGTCTCTGAAGTGATTTCT 1800

                    1810      1820      1830      1840
          ┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊
          CCAACACAGACAGAACTGTAAACTGTGCGTTTATTCGTAT 1840
          TAAAATTCACTGCCAATCTTGTGCCAGCTACAGTAACAGA 1880
          CACAGAGGGGGTTGGAGTCTGGCAGTCACGACCGTACATC 1920
          TGACTCTATGGGGAGGCTTGAGACTCAGGAGAATGACCTG 1960
          AACCCTGCGGCACAGGACCAACCATTGCAGTGGAATCTCA 2000

                    2010      2020      2030      2040
          ┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊┊
          CTTCTAGGTTAAAGGTAGCTTTCTATCCATCGCAAATGTA 2040
          TGTCTTCTCCTCTGCCRTGTAGACTACAGTTTTCCCCAAC 2080
          CTCTCTCACCTTGACTCCTTGTCAAAGGGCTTTTAGGGAA 2120
          CTTCATGTTCTGACAATTTAACTAATAAAACAAAAGCAAG 2160
          CCCCGTGAAAAAAAAA 2176
```

Work continued to Page

DATE REDAC

DISCLOSED TO AND UNDERSTOOD BY | DATE

Exhibit 2

From: Richard Sheldon [RSheldon.2BURTT_A.AND_N@gvn002m.gv.us.pri.wyeth.com]
Sent: REDACTED
To: GSturrock.GICE01.USCE01@gvn002m.gv.us.pri.wyeth.com
Subject: Sequencing Request 2368 Final Results

ID72__hum ID72_DF04
Reference.Tonsensus_92

Gunilla,

   Here is the completed sequence for clone DF04Qp1 for ID72. There are
a few differences with the provided reference sequence:

1.   1465 C to T shift
2.   2030 deletion of C
3.   2453 deletion of C

   I will attach the reference sequence and consensus sequence in FASTA
format. The clone is stored in the second -80 freezer on the right side
of the lowest shelf., The DNA is in my small refrigerator in a box
labeled "Gunilla's Projects."

rick

Exhibit 2 (continued)

ID72__human_Reference.TXT

>ID72__human_Reference
ATGGGCTGCGGCGGGAGCCGGGCGGATGCCATCGAGCCCCGCTACTACGA
GAGCTGGACCCGGGAGACAGAATCCACCTGGCTCACCTACACCGACTCGG
ACGCGCCGCCCAGCGCCGCCGCCCCGGACAGCGGCCCCGAAGCGGGCGGC
CTGCACTCGGGCATGCTGGAAGATGGACTGCCCTCCAATGGTGTGCCCCG
ATCTACAGCCCCAGGTGGAATACCCAACCCAGAGAAGAAGACGAACTGTG
AGACCCAGTGCCCAAATCCCCAGAGCCTCAGCTCAGGCCCTCTGACCCAG
AAACAGAATGGCCTTCAGACCACAGAGGCTAAAAGAGATGCTAAGAGAAT
GCCTGCAAAAGAAGTCACCATTAATGTAACAGATAGCATCCAACAGATGG
ACAGAAGTCGAAGAATCACAAAGAACTGTGTCAACTAGCAGAGAGTCCAA
GCAGAAGGGCAGATGGACTTCTTCAGTGTCCTTCACGGCACTGGATCCCA
TCAAAGAACCTTGAAGAAGTGGCTGCCCCTTGCTGGACCTGAATTCTACT
GAGTCCCTGGCAAGACTGTCTTACCTGGCAGCAAACTGCTGCCTGATTTG
TTGGGACCTTCTGAGCCTTCTACTTATCATGTAAATGTATTGGCACAGTG
CTTACATATGTTAATAAACTGCAAATGTGCAGTTCAGTTTGTCTCTTTGC
AACTCCTGTAATACGGTCTGGTGTAAAAGTAGTGAGTTAAAGCTACAGGT
CAGTTTATGAAACAGAAAAGTAGGAATGCATTTTCTGGGTGAAAGAGTCA
CACCTTAGTGCTATAACTCTCCTGCCCATGATAGTGTATTCTGTTTCAGG
CAAGCTTATTCTTTCCTTCTTTCATTTTAAATATTGTCATTACAAATCTT
ACCAGGTTCACTTAAAAGCTGGCTTTCATCCAACTCTAAACCCACATATT
GAAAAAATCAAGGTACAGGAAAACTCCTTGTTATCCTTGTTTCCTTAGCT
TGGTATGAGACAGATCGGATCCAGTTTCCCATGCACCAACCCACTGCCCA
TGGCATGTCTTTGGGAGGTGTCTGTGAAGCAGTCATACCTGCTCCTCATC
TGCCTGGAAAGTCCTCCTATTCCAGTGTCCATGTTGGCCTCCAGTCCTTA
ATGTCACCATGCTTGTGGCCAATGCATCCAAATAAGGATACCCCTCAGGG
CTCAGCTAGACATTGCAATTTTGCATAGCTTTCCAGTTCCCTTTGCTTGT
CTTCTTGACTGTCTTCCCTCTCTATCGGGGTCACTTGCAATTGTTAATCA
AAGATTGAACACTGCGTAGGAGAGGGAGATGATCCAGAGACATGTGGCAG
CAGGCATGGCTTCCCCTTGGCCTCTCTGTACACTGCCCCAGGACTGTCAT
TTTGGCATCTGCAAAGGAATCACTTTAGAAAGCCAGCACCTGGTTGATGT
GTATTCATACTGACATTAGATTGATGTGCACTGCATTAGAAATGAGGTAG
CTGACACAGAAAAAGGATGTTTTGATAGGAATAATTTTCTAGTATGTCTT
GAAACATGTTCATCTGGAAGTATTTTCCTCCAAAGTAATGTAGCATGATT
TTTCAAGGATTGTTAACATGCCTGGGATTGGGAAAGATAGGACTAAAGTT
GTGCCAAACTATATCAATAAATTCCATGTTTAGCAGAAATAGGCAGCCTA
TTGGTGTTATGTTTATGTAACATAGTCCAGAGAACTGACATGCAGGTCAA
AAGTCAGATACGCAACCTCCTTATCTGCTAACTCTGTTATTCTTCAAACA
CAAGTGGGTAGTGTCATTTTTTCCTTCCCTTCCTTCCATTGGCAGATTGTA
TATTTATTCACAAAACATTAAATGTCCATCCTGTGCCAGGTACTATGCAG
ATGTTGAGGGATTTGGGGTCTGGTTAGTCGTGACTATCTATCCTGAATCT
AACAGTGACTTCATAACTAGGAGACTGAATTAGACCCTTAAGGTATAGTG
TGTGTTGCAAATCACTCTGCAATGGAAACTTTTATATTCAGGGTAGGTTT
GTGTCTTAAACTAGGTGTTCTAATCAATGTACAAGACTTTACCATACACG
CAACTTTAGTTTTTCTAAACCTTCATCATTTTGTGATTCTTTGAGAAAGG
GCTTTTAGGAACTTTATGTTCTAAAAAATGTTTTTAACAATAATAAGATA
AAAGAAAAACCTGTGATTCATATGTCCCCACTGGCATTACTCAGCAGGAG
CCCCCCAGCTGCCAAAGGTTGGCAGTGATCCTGCAAGTTCAAGGGCTCTT
TCTCCCTGGGGATGTGCTTTGTGGCTTCTCTTTACAGCTTTGTTTCTGCA
TCAGTTCACTGCTGCATGTTGTTTGGAATTTATCACCTTAAGAAAGTGTC
TCTGTTTTATATAGAAACACTTTCTCACTTACAGGGGAGAAGGAAATGCA
GGGCACATGATCTGGCCCTCCCCAGAACAATCTGGATTTCACGGAGACAG
CAACCAGAAGTTAAACCATGTGACTAAAAATGCATCTGGCTACTTTTTCA
TGTATGTATGAGACAGAAACTAATCCTTACTATCCTATTAGGATACCACT
TTTCATTGCAAAGTTTGTGTCAATAAAGTCATTAATTTTTAAACAT

Exhibit 2 (continued)

ID72_DF04QP1_Consensus_92701.tx.TXT
>ID72_DF04QP1_Consensus_92701.tx
GGTACCGGTCCGGAATTCCCGGGATGCCCGGACTAGGGGCGGCGGGCACC
GCAGGAGCTCCGCGCGGCTGCAGCGCGGGCGGGAGCGGGGACGCGATGTC
GCCGCCGCCGCCTCCTTGCGGGCCGGGGCTGCGCCTCCGGGGCTGAGCCG
CCGCCAGAGCCGACAGCCGAGCAGCCGCTGGGCGCTCCCGCGGCGCAGGA
GGATGGGCTGCGGCGGGAGCCGGGCGGATGCCATCGAGCCCCGCTACTAC
GAGAGCTGGACCCGGGAGACAGAATCCACCTGGCTCACCTACACCGACTC
GGACGCGCCGCCCAGCGCCGCCGCCCCGGACAGCGGCCCCGAAGCGGGCG
GCCTGCACTCGGGCATGCTGGAAGATGGACTGCCCTCCAATGGTGTGCCC
CGATCTACAGCCCCAGGTGGAATACCCAACCCAGAGAAGAAGACGAACTG
TGAGACCCAGTGCCCAAATCCCCAGAGCCTCAGCTCAGGCCCTCTGACCC
AGAAACAGAATGGCCTTCAGACCACAGAGGCTAAAAGAGATGCTAAGAGA
ATGCCTGCAAAAGAAGTCACCATTAATGTAACAGATAGCATCCAACAGAT
GGACAGAAGTCGAAGAATCACAAAGAACTGTGTCAACTAGCAGAGAGTCC
AAGCAGAAGGGCAGATGGACTTCTTCAGTGTCCTTCACGGCACTGGATCC
CATCAAAGAACCTTGAAGAAGTGGCTGCCCCTTGCTGGACCTGAATTCTA
CTGAGTCCCTGGCAAGACTGTCTTACCTGGCAGCAAACTGCTGCCTGATT
TGTTGGGACCTTCTGAGCCTTCTACTTATCATGTAAATGTATTGGCACAG
TGCTTACATATGTTAATAAACTGCAAATGTGCAGTTCAGTTTGTCTCTTT
GCAACTCCTGTAATACGGTCTGGTGTAAAAGTAGTGAGTTAAAGCTACAG
GTCAGTTTATGAAACAGAAAAGTAGGAATGCATTTTCTGGGTGAAAGAGT
CACACCTTAGTGCTATAACTCTCCTGCCCATGATAGTGTATTCTGTTTCA
GGCAAGCTTATTCTTTCCTTCTTTCATTTTAAATATTGTCATTACAAATC
TTACCAGGTTCACTTAAAAGCTGGCTTTCATCCAACTCTAAACCCACATA
TTGAAAAAATCAAGGTACAGGAAAACTCCTTGTTATCCTTGTTTCCTTAG
CTTGGTATGAGACAGATCGGATCCAGTTTCCCATGCACCAACCCACTGCC
CATGGCATGTCTTTGGGAGGTGTCTGTGAAGCAGTCATACCTGCTCCTCA
TCTGCCTGGAAAGTCCTCCTATTCCAGTGTCCATGTTGGCCTCCAGTCCT
TAATGTCACCATGCTTGTGGCCAATGCATCCAAATAAGGATACCCCTCAG
GGCTCAGCTAGACATTGCAATTTTGCATAGCTTTCCAGTTCCCTTTGCTT
GTCTTCTTGACTGTTTTCCCTCTCTATCGGGGTCACTTGCAATTGTTAAT
CAAAGATTGAACACTGCGTAGGAGAGGGAGATGATCCAGAGACATGTGGC
AGCAGGCATGGCTTCCCCCTTGGCCTCTCTGTACACTGCCCCAGGACTGTC
ATTTTGGCATCTGCAAAGGAATCACTTTAGAAAGCCAGCACCTGGTTGAT
GTGTATTCATACTGACATTAGATTGATGTGCACTGCATTAGAAATGAGGT
AGCTGACACAGAAAAAGGATGTTTTGATAGGAATAATTTTCTAGTATGTC
TTGAAACATGTTCATCTGGAAGTATTTTCCTCCAAAGTAATGTAGCATGA
TTTTTCAAGGATTGTTAACATGCCTGGGATTGGGAAAGATAGGACTAAAG
TTGTGCCAAACTATATCAATAAATTCCATGTTTAGCAGAAATAGGCAGCC
TATTGGTGTTATGTTTATGTAACATAGTCCAGAGAACTGACATGCAGGTC
AAAAGTCAGATACGCAACCTCCTTATCTGCTAACTCTGTTATTCTTCAAA
CACAAGTGGGTAGTGTCATTTTTCCTTCCTTCCTTCCATTGGCAGATTGT
ATATTTATTCACAAAACATTAAATGTCCATCCTGTGCCAGGTACTATGCA
GATGTTGAGGGATTTGGGGTCTGGTTAGTCGTGACTATCTATCCTGAATC
TAACAGTGACTTCATAACTAGGAGACTGAATTAGACCCTTAAGGTATAGT
GTGTGTTGCAAATCACTCTGCAATGGAAACTTTTATATTCAGGGTAGGTT
TGTGTCTTAAACTAGGTGTTCTAATCAATGTACAAGACTTTACCATACAC
GCAACTTTAGTTTTTCTAAACCTTCATCATTTTGTGATTCTTTGAGAAAG
GGCTTTTAGGAACTTTATGTTCTAAAAAATGTTTTTAACAATAATAAGAT
AAAAGAAAAACCTGTGATTCATATGTCCCCACTGGCATTACTCAGCAGGA.
GCCCCCAGCTGCCAAAGGTTGGCAGTGATCCTGCAAGTTCAAGGGCTCTT
TCTCCCTGGGGATGTGCTTTGTGGCTTCTCTTTACAGCTTTGTTTCTGCA
TCAGTTCACTGCTGCATGTTGTTTGGAATTTATCACCTTAAGAAAGTGTC
TCTGTTTTATATAGAAACACTTTCTCACTTACAGGGGAGAAGGAAATGCA
GGGCACATGATCTGGCCCTCCCCAGAACAATCTGGATTTCACGGAGACAG
CAACCAGAAGTTAAACCATGTGACTAAAAATGCATCTGGCTACTTTTTCA
TGTATGTATGAGACAGAAACTAATCCTTACTATCCTATTAGGATACCACT
TTTCATTGCAAAGTTTGTGTCAATAAAGTCATTAATTTTAAACATAAAAA
AAAAAAAAAAAAAAAAAAAAAGGGGCGGCCGCTCTAGAGTATCCCTCGAG
GGGCCCAAGCTTACGCGT

Exhibit 2 (continued)

Safran, Jeffrey B.

From: Fariba Shoarinejad [SHOARIF@wyeth.com]
Sent: Wednesday, REDACTED 11:11 AM
To: Safran, Jeffrey B.
Subject: Fwd: Re: Your clone

And more..

>>> John A. Robinson REDACTED 2:57:11 PM >>>
FYI, this is when I said we would accept the human clone from Invitrogen.

John

>>> Gunilla Sturrock REDACTED 9:32:16 AM >>>
Thanks John,

I'll let Invitrogen know that we accept the clones.

Gunilla

>>> John A. Robinson REDACTED 7:42 AM >>>
Hello Gunilla, the human Fragment 22 clone looks good, there is 136 bp more 5' UTR and more 3' UTR and the largest ORF from the human sequence information that you provided us is the same as the rat sequence. However, interestingly, of the 136 bp's additional 5' UTR, the first 25 bp's is odd. In a Celera search of the "assembled human sequence" we were not able to identify this first 25 bp's. However, if we search Celera's "unplaced fragments" we identified that 25 bp but it was located in a different chromosome region relative to the rest of the clone, so we are not sure what that first 25bp's is. I can tell you that we looked over 120,000 bp's 5' of the first exon that we have in the assembled human Celera sequence and we don't see that 25 bp sequence and I can tell you there is very little unsequence gaps in that 120,000bp. However, if you go further than 120,000bp's then there are more gaps and so it would be unreliable to look any further. Obviously we were trying to look for another exon 5' of our 1st exon. We looked this far because we know that intron 1 is big, 60kb. So in summary we are not sure what that first 25 bp's is. A Japanese group has recently published in the database the same sequence that we have with the same ORF that we predicted however they do not have the 25 bp of the 5' UTR that Invitrogen's clone has. We will try to do some RT-PCR with that sequence and 5' RACE to see if we have another exon. I have sent the predicted ORF amino acid sequence to Nancy to begin antibody production, but as yet we are not entirely sure whether there is another exon.
John

>>> Gunilla Sturrock REDACTED 10:33 AM >>>
Hi John,

I was wondering if you could give me an update on the Genoscope clone? Is it what you wanted? Did you get the ORF issues resolved?

Thanks,

Gunilla